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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Michael Zobel et al.
Serial No.	:	09/890,148
Filed	:	August 27, 2001
For	:	POLYCARBONATE MOLDING MATERIALS WITH ANTISTATIC-PROPERTIES
Art Unit	:	1712
Examiner	:	J. Robertson

DECLARATION

I, Thomas Eckel, residing at Pfauenstr. 51, 41540 Dormagen, Germany, declare as follows:

1) that I have the following technical education and experience:

   a) I am a chemist having studied at the Phillips-Universität of Marburg, Germany, from 1978 to 1987;

   b) I received the degree of doctor rer. nat. at the Phillips-Universität of Marburg in the year of 1987;

   c) I am employed by Bayer AG since July 1987 in the Research Department especially handling polymer blends;

2) that the following tests were carried out under my immediate supervision and control:

Experimental results

Component A

Polycarbonate based on bisphenol A with a relative solution viscosity of 1,252, measured in methylene chloride at 25°C and in a concentration of 0.5 g/100 ml.

Component B

Styrene/acrylonitrile copolymer with a styrene/acrylonitrile ratio of 72:28 and a limiting viscosity of 0.55 dl/g (measurement in dimethylformamide at 20°C).

Component C

Graft polymer of 40 parts by wt. styrene and acrylonitrile in a ratio of 73:27 on 60 parts by wt. crosslinked polybutadiene rubber in particle form (average particle diameter d_{50} = 0.3 µm), prepared by emulsion polymerization.

Component D

Pural 200, an aluminium oxide hydroxide (Sasol, Hamburg, Germany) is employed as the inorganic compound. The average particle size of the material is approx. 20 - 40 nm.

Component D-2

Siral 10, a silicium/aluminium oxide hydroxide (Sasol, Hamburg, Germany) is employed as the inorganic compound. The ratio Al_2O_3 : SiO_2 is 90 : 10. The average particle size of the material is approx. 50 µm.

In addition to the indicated components, each composition further contained 0.1% phosphite stabilizer and 0.8% of a conventional mold release agent, none believed to be critical to the invention.

Preparation and testing of the molding compositions according to the invention

The compositions described in the table 1 below were prepared on an injection moulding machine, Arburg 270 E type, at 260 °C and their properties determined.

The tensile E modulus is measured in accordance with the method of ISO 527.

The elongation at break DR is determined in the context of the determination of the tensile E modulus in accordance with the method of ISO 527 on F3 dumbbell bars.

The antistatic action is determined by a dust figure test. For this circular sheets are

charged statically with a cotton cloth and then dusted with aluminium powder. The evaluation is visual.

The Vicat B heat distortion point is determined in accordance with DIN 53460.

The composition of the materials tested and the data obtained are summarized in the following table 1.

Table 1

Examples	3	4
	Comparison	
Components [%]		
A	42.18	42.18
B	32.38	32.38
C	23.57	23.57
D	-	0.99
D-2	0.99	-
Additives	0,9	0,9
Properties		
Vicat B 120 [°C]	111	111
Dust figure test	+	+
Tensile E modulus [N/mm^2]	2031	2125
Elongation at break [%]	41	61
MVR (260°C/5 kg) [ccm/10 min]	8.4	10.7
a_k Izod 260°C/23°C [kJ/m^2]	23 (brittle)	42 (ductile)

The composition comprising the aluminum oxide hydroxide according to the invention 4 is compared with a composition 3 comprising a inorganic compound D-2 which is a mixture of Al_2O_3 and SiO_2 in the ratio 90 : 10.

Both composition 3 and 4 exhibit the requested improved antistatic action, but the composition according to the invention 4 is superior with regard to the mechanical properties such as a high ductile a_k Izod value and higher values of MVR, elongation at break and tensile E modulus.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Thomas Eckel

THOMAS ECKEL

Signed at Dormagen this 23. day of February, 2006.